MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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INTRODUCTION.

The REVIEW for October, 1896, is based on 2,735 reports from stations occupied by regular and voluntary observers, classified as follows: 140 from Weather Bureau stations; 33 from U. S. Army post surgeons; 2,421 from voluntary observers; 33 from Canadian stations; 1 from Hawaii; 96 received through the Southern Pacific Railway Company; 14 from U. S. Life-Saving stations. International simultaneous observations are received from a few stations and used together with trustworthy newspaper extracts and special reports.

The WEATHER REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe. Unless otherwise specifically noted, the text is written by the Editor, but the statistical tables are furnished by Mr. A. J. Henry, Chief of the Division of Records and Meteorological Data. Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada, Mr. Curtis J. Lyons, Meteorologist to the Government Survey, Honolulu, and of Dr. Mariano Bárcena, Director of the Central Meteorological Observatory of Mexico.

CLIMATOLOGY OF THE MONTH.

GENERAL CHARACTERISTICS.

The principal storm of the month was the hurricane that moved slowly northward from the West Indies on the 9th to the coast of New England on the 15th, but which was not felt severely at any interior land stations. Another interesting storm passed from the west Gulf States on October 23, rapidly northeastward, attended by general rain. The storm that passed from Kansas, October 28, to Lake Superior, October 31, was the only one that brought high winds to the Lake Region. In general the month was rather above the average as to pleasant autumn weather. The temperature was decidedly below the average from the Rocky Mountains to the Atlantic Coast, although there were a few days on which high maximum temperatures occurred in the immediate Mississippi and Missouri valleys. Rainfall was below the normal in the South Atlantic and east Gulf States, and lower Lake Region, but above the average in the west Gulf States. The snowfall on the northern Slope and middle Plateau regions was above the normal for the month.

ATMOSPHERIC PRESSURE.

[In inches and hundredths.]

The distribution of mean atmospheric pressure reduced to sea level, as shown by mercurial barometers, not reduced to standard gravity, and as determined from observations taken daily at 8 a. m. and 8 p. m. (seventy-fifth meridian time), is shown by isobars on Chart IV. That portion of the reduction to standard gravity that depends on latitude is shown by the numbers printed on the right-hand border.

The *mean pressures* during the current month were high in the Middle Atlantic States, Manitoba, and the Dakotas. Pressures were low in the Pacific Coast States.

The highest pressures were: Lander, 30.13; Parkersburg and Lynchburg, 30.11; Cincinnati, Pittsburg, Knoxville, and Cheyenne, 30,10. The lowest were: Yuma, 29.83; Fresno, 29.91; Los Angeles, 29.92; Red Bluff and Prince Albert, 29.93; San Diego, 29.94.

As compared with the normal for October, the mean pressure was in excess over all the Canadian Provinces and the lower Lake Region. It was deficient in the Pacific Coast States.

The greatest excesses were: St. Johns, N. F., 0.18; Qu'Appelle, 0.10; Minnedosa, 0.09; Bismarck, 0.08; Father Point and Sydney, 0.07; Halifax, Chatham, and Williston, 0.06. The greatest deficits were: Roseburg, 0.09; Block Island, Yuma, and Red Bluff, 0.08; Fresno and Vicksburg, 0.07; Nantucket, Atlanta, and Los Angeles, 0.06.

As compared with the preceding month of September, the pressures reduced to sea level show a rise at all stations except the coast of Washington, and the coast of New England and the Canadian Provinces.

The greatest rises were: Minnedosa, 0.12; Idaho Falls, 1.11; Winnipeg and Winnemucca, 0.10; White River, Qu'Appelle, Lander and El Paso, 0.09. The greatest falls were: St. Johns, N. F., 0.10; Bermuda, 0.07; Yarmouth, 0.06; Halifax, 0.05.

AREAS OF HIGH AND LOW PRESSURE.

By Prof. H. A. HAZEN.

During the month the paths of ten high and nine low areas were sufficiently well marked to be traced upon Charts II and I at the end of this REVIEW. From p. m. of the 3d to a. m. of the 10th there was a subpermanent low area in western Arizona. The path of low No. IX could be followed for only twenty-four hours, and for this reason no data have been inserted for it. The principal characteristics of the movements of these highs and lows will be found in the table accompanying, and a few of the more important details are here given.

HIGHS.

There has been a rather remarkable tendency for highs to